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Rietzschel, E.F.

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**Eric F. Rietzschel¹****Abstract**

Much innovative work in organizations takes place in teams. Because organizational demands are complex and resources are limited, teams need to regulate their collective efforts to perform optimally. Based on previous research and a stage-based approach to innovation, it was hypothesized that team-level regulatory focus would predict teams' activities regarding the generation and promotion of innovative ideas, but not actual implementation. Regulatory focus and innovative performance were measured in an organizational survey study. Results showed that, as expected, regulatory focus affected idea generation and idea promotion, but not idea realization.

Keywords

creativity, innovation, regulatory focus, teams

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Groups and teams are often assumed to have a special potential for innovative behavior, and hence to be in a unique position to contribute to organizations' competitive performance. Many studies have therefore addressed the factors that facilitate or hinder team innovation (see Hülshager, Anderson, & Salgado, 2009; Paulus, 2008, for recent overviews). One factor that has received surprisingly little attention is the issue of *self-regulation*. Teams work in a competitive and demanding environment, and have only limited resources at their disposal; therefore, they need to regulate their collective efforts in order to perform effectively and innovatively. Although several studies have addressed self-regulation in groups (Faddegon, Scheepers, & Ellemers, 2008; Faddegon, Ellemers, & Scheepers, 2009; Florack

& Hartmann, 2007; Levine, Higgins, & Choi, 2000), its effects on team innovation have so far been neglected. The current article aims to fill this gap by applying Higgins' (1997) Regulatory Focus Theory to organizational teams.

Innovation, or the intentional introduction and implementation of new ideas, processes, products, or procedures (West & Farr, 1990), is crucial to organizational success: It is through innovation that organizations can improve their

¹University of Groningen, The Netherlands**Corresponding author:**

Eric F. Rietzschel, Department of Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands.

Email: e.f.rietzschel@rug.nl

performance and gain or retain a competitive edge. The starting point of any innovative process is *creativity*: the generation of ideas that are both original and useful (Amabile, 1996; Sternberg & Lubart, 1999; West, 2002). Creative processes in groups and teams have been widely studied (Brown, Tumeo, Larey, & Paulus, 1998; Nijstad & Stroebe, 2006). However, the presence of creative ideas is not enough to come to actual innovation (Rietzschel, Nijstad, & Stroebe, 2006; West, 2002). Teams must ensure successful implementation of their ideas by promoting and mustering support for their ideas, and/or by implementing their ideas themselves (Janssen, 2001; Kanter, 1988). This requires a commitment to innovation that goes beyond idea generation. I argue that self-regulatory processes are particularly relevant here.

Self-regulation is the process through which people align their actions to specific goals, ideals, or norms (Baumeister, Schmeichel, & Vohs, 2007). Arguably the most influential theory of self-regulation at this time is Higgins' (1997) Regulatory Focus Theory (RFT). RFT distinguishes between two different modes or foci of self-regulation: a *promotion* focus, in which people are predominantly concerned with achievement, growth, and the realization of aspirations, and a *prevention* focus, in which people are predominantly concerned with security, safety and responsibility. Although to date no studies have addressed the effects of regulatory focus on team innovation, two lines of research suggest that such effects are indeed likely to occur.

Regulatory focus and creativity

First, there is work showing that regulatory focus affects cognitive processes involved in creative performance. For example, Crowe and Higgins (1997) argued and found that a promotion focus is associated with *eagerness*, whereas a prevention focus is associated with *vigilance*. This difference is often described in signal detection terms: promotion-focused individuals strive for maximization of *hits*, and would rather risk a false positive than a miss (an error of commission). In contrast, prevention-focused individuals strive for

maximizations of *correct rejections*, and prefer misses over false positives (an error of omission) (Crowe & Higgins, 1997). Higgins (1997) argued that these different tendencies should affect creativity, and indeed Friedman and Förster (2001) found that a promotion focus enhanced (individual) creative performance on a variety of tasks. Given that any innovation process necessarily starts with the generation of creative ideas, it seems plausible that team innovation will also be affected by regulatory focus. Moreover, regulatory focus has been linked to preferences for stability or change, in that promotion-focused individuals have been found to be more open to change than prevention-focused individuals (Lieberman, Idson, Camacho, & Higgins, 1999). Since creativity and innovation by definition imply change, this again supports the notion that regulatory focus will affect innovative behavior in organizations.

Regulatory focus and groups

Second, although regulatory focus initially was proposed as an individual-level theory, several researchers have shown that the theory and its predictions also hold on the group level.¹ For example, Levine, Higgins, and Choi (2000) found that promotion-focused groups collectively displayed a risky bias in a recognition memory task (that is, they were biased towards false positives) whereas prevention-focused groups converged upon a conservative bias (that is, they were biased towards misses). Levine et al. describe this collective focus in terms of a shared reality that develops in groups. Following up on this study, Florack and Hartmann (2007) found that prevention-focused groups were more risk-averse in a simulated investment task than promotion-focused groups, both in the content of their discussions and in their subsequent decisions. Similarly, Faddegon, Scheepers, and Ellemers (2008) manipulated regulatory focus as a social identity characteristic in a minimal group paradigm and again found that a promotion focus was associated with a risky bias as compared to a prevention focus. Moreover, Faddegon, Ellemers, and Scheepers (2009) showed that chronic regulatory

focus affected creative group performance in an anagram task.

Putting these two lines of research together, it seems highly likely that regulatory focus will affect teams' innovative performance, such that a stronger promotion focus is associated with more team innovation, whereas a stronger prevention focus is associated with less team innovation. However, as noted above, innovation is a complex process that comprises several stages or activities. This raises the question whether team regulatory focus is equally likely to predict *all* aspects of the innovation process.

Aspects of innovation

While organizational innovation is not a linear process with well-defined goals or endpoints, many researchers distinguish between different stages in the innovative process (Basadur & Gelade, 2006; Damanpour & Schneider, 2006; Kanter, 1988; Osborn, 1963; Parnes, 1992). There appears to be broad consensus that innovation at least requires (1) the *generation* or proposal of a creative idea by organization members; (2) *support* for the idea, in the sense of agreement that the idea is worthwhile and deserves implementation; and (3) actual *implementation* and adoption of the idea. Following earlier work by Janssen (2001) and Kanter (1988), in the current article, these activities will be referred to as idea generation, idea promotion, and idea realization, respectively. Although 'innovation' is often measured as an aggregate variable (De Dreu & West, 2001; Taggar, 2002; Woodman, Sawyer, & Griffin, 1993), research suggests that different stages of the innovation process may not always be affected by the same variables in the same way. For example, West, Sacramento, and Fay (2005) found that external demands inhibited team idea generation, but actually stimulated idea realization. Further, Rietzschel, Nijstad, and Stroebe (2006) found that differences in idea generation performance (i.e., quantitative differences between groups and individuals) did not lead to differences with regard to idea selection. Thus, it is crucially important to explicitly distinguish between the different stages or aspects of innovation.

How might team-level regulatory focus relate to the above-mentioned three aspects of team innovation? With regard to *idea generation*, the prediction is fairly straightforward. A promotion focus enhances individual idea generation because it instills a risky bias (Friedman & Förster, 2001), and a collective promotion focus also leads to a collective risky bias (Levine et al., 2000). Moreover, Faddegon et al. (2009) found that groups whose members were more promotion-focused performed more creatively in a task where they had to generate anagrams. Hence, it is to be expected that a team's idea generation activities will be positively predicted by the strength of its collective promotion focus, and negatively by the strength of its collective prevention focus.

Idea promotion refers to the 'selling' of creative ideas (Kanter, 1988). This requires willingness to invest resources in the innovative process, and a strong belief that creative ideas are worth pursuing further. It is likely that collective regulatory focus plays an important role here, because self-regulation is at the heart of such investment decisions. The eager striving for achievement associated with a promotion focus should cause teams to invest time and effort in the promotion of innovative ideas. In contrast, when teams are collectively more attuned towards prevention, team members probably prefer familiar options, which are already known to be effective and therefore 'safe'; hence, such teams should be less likely to promote and implement innovative, 'risky' ideas. Florack and Hartmann's (2007) earlier finding that group regulatory focus affected groups' willingness to invest in risky vs. safe options is fully in line with this reasoning; however, those results were obtained with a simulated investment task using ad hoc groups in an artificial setting. It remains an open question whether such effects also pertain to organizational teams' willingness to invest in innovative ideas. It is hypothesized here that this is indeed the case; thus, a team's idea promotion activities should be positively predicted by its collective promotion focus, and negatively by its prevention focus.

Idea realization, finally, refers to the team's success in actually implementing creative ideas.

Similarly to idea promotion, this requires a willingness to invest resources in creative ideas. However, it is far from obvious that a preference for innovative, 'risky' ideas and strategies (stemming from a promotion focus) will actually contribute to successful implementation. Ideas that do not meet the demands of everyday reality (e.g., because they are too dangerous, too expensive, require new technologies that have not yet been invented, etc.) are useless, no matter how innovative they are. Moreover, implementation activities are always constrained by factors external to the team, e.g. constraints with regard to budget, organizational priorities, or economic circumstances will strongly influence idea realization, independently of the team's collective focus. This inevitably weakens regulatory focus effects on idea realization. For these two reasons, it seems unlikely that idea realization can be directly predicted by collective regulatory focus.

In sum, it is to be expected that the level of a team's collective promotion focus will positively predict the team's idea generation and idea promotion activities; the opposite relationships should hold for prevention focus. In contrast, idea realization is not likely to be affected by collective promotion or prevention focus. These hypotheses were tested in a survey study of organizational teams.

Method

Participants

Participants were members and team leaders of 33 teams in several organizations in The Netherlands. In total, 336 people (303 team members and 33 team leaders) filled in a questionnaire. The average age of the respondents was 36.3 years ($SD = 9.67$), and 36.6% of the participants were female.

Procedure

Participants were asked to participate in a paper-and-pencil survey, then participants were asked to place the questionnaire in a designated (closed)

box after filling it in. To reduce common source bias (Podsakoff, McKenzie, Lee, & Podsakoff, 2003), two different questionnaires were distributed: one for team members (containing the collective focus measure) and one for team leaders (containing the team innovation measure). Although team members were requested to indicate in which team they worked (in order to link the member responses to those of the leaders), team leaders did not see the responses of the individual team members.

Measures

Control variables Age and sex of the team members: (mean age of team members; member sex was operationalized as the proportion of females in the team), as well as the number of respondents per team were measured and included as control variables in the analyses, in order to reduce irrelevant variance in the independent and dependent variables.

Collective focus Collective regulatory focus was measured with a scale adapted from Van Stekelenburg and Klandermans' (2003) short RFQ-p. Originally developed and validated as a measure of individual regulatory focus, this scale consists of 14 proverbs capturing a promotion focus (e.g., "he who does not dare, does not win") or a prevention focus (e.g., "better safe than sorry"). Team members were instructed to indicate how strongly each proverb applied to the way their team, as a whole, worked (1 = not at all, 7 = completely). Reliability was good for the promotion subscale ($\alpha = .85$), and modest but acceptable for the prevention subscale ($\alpha = .69$). For both subscales, scores on the separate items were averaged into a score for collective promotion focus and a score for collective prevention focus. Eta squared statistics were sufficiently high to warrant aggregation to the team level ($\eta^2 = .21$ for both promotion and prevention); therefore, for each team the average scores for collective promotion and prevention focus were computed.

Team innovation Team innovation was measured with Janssen's (2001) 9-item scale, comprising the three subscales idea generation ($\alpha = .85$; example item: "How often does the team come up with original solutions for work-related problems?"), idea promotion ($\alpha = .89$; e.g., "How often does the team mobilize support for innovative ideas?"), and idea realization ($\alpha = .82$; e.g., "How often does the team turn innovative ideas into practical applications?"). With each item, team leaders were asked to indicate how often the team displayed that behavior (1 = "never"; 7 = "always"). Mean scores were computed for the three subscales.

Results

Correlations and descriptives

Descriptive statistics and zero-order correlations for collective focus and team innovation are reported in Table 1. Promotion focus was significantly correlated with idea promotion; correlations with idea generation and idea realization did not reach statistical significance. All three subscales of team innovation were highly intercorrelated.

Team innovation

To test the hypothesis that collective regulatory focus differentially predicted the different

innovation subscales, I performed a Structural Equation Modeling analysis using the statistical package EQS 6.1 (Bentler, 1995). I built a model with the control variables and promotion and prevention climate as predictors; predictors were assumed to be independent, unless they were correlated with $p < .1$ (see Table 1). The three subscales of the innovation scale were included as (correlated) dependent variables. The model showed good fit ($\chi^2 = 8.11$, $df = 6$, $p = .23$; CFI = .98, SRMR = .09). However, a Lagrange Multiplier test showed that fit could be significantly improved by including a correlation between sex and collective prevention focus ($\chi^2 = 4.77$, $p = .029$). The revised model showed excellent fit ($\chi^2 = 2.91$, $df = 5$, $p = .71$, CFI = 1, SRMR = .05).

Inspection of the regression coefficients in the revised model showed that, as expected, idea generation was positively predicted by collective promotion focus ($B = .64$, $SE = .32$, $t = 1.97$, $p < .05$), although not by prevention focus ($B = -.48$, $SE = .47$, $t = -1.03$, $p > .05$). Further, idea promotion was positively predicted by collective promotion focus ($B = 1.08$, $SE = .31$, $t = 3.42$, $p < .05$), and negatively by collective prevention focus ($B = -1.09$, $SE = .46$, $t = -2.38$, $p < .05$); in addition, idea promotion was positively predicted by the number of respondents per team ($B = .09$, $SE = .03$, $t = 2.81$, $p < .05$), and negatively by the proportion of female team members ($B = -1.57$, $SE = .67$, $t = -2.33$, $p < .05$). Finally, idea

Table 1. Descriptives and correlations

	M	SD	Respondents	Age	Sex	Prom. focus	Prev. focus	Idea gen.	Idea prom.	Idea real.
Respondents	9.18	6.57	—	.21	.63**	-.13	.47**	.08	.04	-.10
Age	35.00	5.25		—	.00	-.01	.46**	.12	.14	.03
Sex	.27	.31			—	-.09	.29	-.19	-.26	-.26
Prom. focus	4.88	0.58				—	.31°	.26	.36*	.13
Prev. focus	4.29	0.49					—	.04	-.05	-.04
Idea gen.	4.37	1.04						—	.79*	.77*
Idea prom.	4.20	1.16							—	.74*
Idea real.	3.89	1.13								—

Note. Maximum value for focus and innovation subscales = 7. $N = 33$ teams. ° = $p < .1$, * = $p < .05$, ** = $p < .001$. Respondents = number of respondents per team. Sex = proportion of females in team.

realization was predicted by neither promotion nor prevention focus ($ts < 1$).

Thus, the hypotheses were largely supported: both idea generation and idea promotion were significantly predicted by the teams' collective regulatory focus; in contrast, this relation did not hold for idea realization.

Discussion

Previous research on innovation has largely neglected the issue of team-level self-regulation. Similarly, research on self-regulation has neglected the issue of team innovation. The aim of the current study was to fill this gap in the literature by showing that collective regulatory focus predicts specific aspects of team innovation. The results showed that, as expected, collective regulatory focus predicted the degree to which teams generated creative ideas, as well as their active attempts to muster support for these ideas (idea promotion). Also as expected, actual implementation of innovative ideas was not predicted by collective focus. Moreover, these differing effects of regulatory focus on aspects of team innovation occurred despite the high intercorrelations between the three innovation subscales.

The current results highlight the importance of distinguishing between different stages or aspects of the innovative process: Merely analyzing effects of collective regulatory focus on a global measure of team innovation would not have yielded the present pattern of results, and hence would have been less informative. Although stage models of the innovative process are quite common (Basadur & Gelade, 2006; Kanter, 1988; Osborn, 1963), in fact, many studies on team innovation employ aggregate measures of team innovation (De Dreu & West, 2001; Taggar, 2002; Woodman, Sawyer, & Griffin, 1993). While such work is valuable and has led to important insights, the current results suggest that important information may be lost if differences between aspects or stages of the innovation process are ignored.

Another important contribution of this study is that it is the first study to demonstrate effects of collective regulatory focus on team performance.

Earlier research has studied effects of regulatory focus on group performance (Levine et al., 2000), creativity (Friedman & Förster, 2001), and organizational behavior (Neubert, Carlson, Kacmar, Chonko, & Roberts, 2008), but thus far not in combination. Given the fact that organizational teams are continuously faced with multiple (and often conflicting) demands on their limited resources, one would expect more attention for collective self-regulation in organizations.

It is not immediately clear why team idea generation was positively predicted by collective promotion focus, but not by prevention focus. Similar results were obtained by Faddegon et al. (2009); however, Friedman and Förster (Experiment 5) found that both chronic foci exerted (opposite) effects on individual creative performance (using the Gestalt Completion Test). This discrepancy in results could be due to differences in setting (lab vs organizations) or sample (students vs employees). It is also possible that idea generation in organizational teams is only partly explained by the processes tapped by the GCT, and depends to a larger degree on other factors (also see Faddegon et al., 2009, for an alternative explanation).

Interestingly, the fact that collective focus predicted idea promotion much more strongly than idea generation suggests that team-level self-regulation exerts its effects particularly strongly on those stages of the innovation process where strategic choices are made regarding the investment of resources. Idea generation in itself is a relatively "free" activity that does not require much strategic thought; in fact, creative idea generation may actually be hindered by consideration of strategies and constraints (Osborn, 1963). Idea promotion, in contrast, requires that attention is directed towards the relative merits of different ideas and to their fit with organizational goals: The team has to decide which of its ideas should be promoted. Idea implementation, finally, only happens *after* a strategic decision is made.

Alternatively, it could be argued that idea realization should be *more* likely to be affected by regulatory focus, because of the "goal looms larger" effect.² For example, Förster, Higgins, and Idson

(1998) found that promotion and prevention effects on task motivation and engagement became stronger when participants were closer to goal attainment. Since idea realization by definition is closer to the attainment of an innovation goal than previous innovation activities, those results would suggest particularly strong promotion and prevention effects for this stage. The current study found no support for this reasoning. One reason for this may be that organizational innovation is not a linear process with a well-defined goal; another possibility is that the measure employed in the current study does not tap into the specific motivational processes addressed by Förster et al. (1998). Moreover, as remarked earlier, successful realization of innovative ideas is constrained by many factors that are beyond the team members' control. However, this issue certainly deserves further study.

Strengths and limitations

The current study was a relatively small-scale survey study; this limits statistical power and makes it impossible to draw conclusions regarding causality. It is possible, for example, that team innovation and collective regulatory focus are both influenced by a third variable such as leadership style. Further, no actual process data were collected; thus, at this point it is not yet clear *how* collective regulatory focus contributes to team innovation, or what role individual regulatory focus plays in these team processes.

A strong point of the study, however, is the fact that the dependent variable was measured through supervisory ratings, rather than perceptions within the teams themselves. This, and the fact that meaningful and significant effects (and, moreover, a meaningful *pattern* of effects) were found with a relatively small sample, lend credence to the results. Nevertheless, they need to be replicated and extended before a more solid conclusion can be drawn. Future research should also address the question how a collective focus comes into existence in organizational teams, and whether this collective focus is truly stable over time or, for example, fluctuates as a function of

shifting external demands or changes in group membership.

Implications

This study shows that collective regulatory focus exerts meaningful effects on organizational teams, and that it therefore is of practical as well as theoretical interest. Managers who wish to improve the innovative performance of their teams would do well to pay attention to the strategic inclinations that develop in their teams, and to be aware of the multidimensional nature of the innovation process. The current results suggest that any intervention aimed at changing the collective self-regulatory tendencies within a team is most likely to affect the way that team promotes ideas. If prior analysis of the team and its performance has shown that a team's weakness lies in, say, idea realization, other team variables may require more attention.

Conclusion

Organizational teams have to be innovative in a complex environment that poses complex demands on their limited resources. Hence, self-regulation is no less important for teams than it is for individuals. The current study confirms this view by showing that collective self-regulatory tendencies can significantly affect specific aspects of teams' innovative performance.

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Notes

1. Another approach to self-regulation and group processes focuses on intergroup processes, rather than intragroup decision-making or performance; see Sassenberg and Woltin (2008), for an overview.
2. I would like to thank an anonymous reviewer for pointing this out.

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Biographical note

ERIC F. RIETZSCHEL is an Assistant Professor in Department of Psychology at the University of Groningen, The Netherlands. His research interests focus on creativity, decision-making, group processes, and team performance.